

REMARKS/ARGUMENTS

Claims 1-8, 11-13, 17-21 and 26 remain in this application. Claims 9, 10, and 14-16 have been canceled. Claims 1, 3 and 11 have been amended.

Claims 22-25 have previously been withdrawn as the result of an earlier restriction requirement. Claim 1 has been amended to include the subject matter of canceled claims 14 and 15. Claim 3 has been amended to recite the memory effect described in Examples 8-10 on pages 25-26 of the specification.

The rejection of claims 1-21 and 26 under 35 U.S.C. §103(a) as being unpatentable over Eguchi et al. (U.S. Patent No. 4,939,556) in view of Ogawa et al. (U.S. Patent No. 5,338,579), Deviney et al. (U.S. Patent No. 5,644,006), and Fukami et al. (U.S. Patent No. 5,914,208) is hereby traversed and reconsideration thereof is respectfully requested in view of amendments to the claims and the remarks set forth below.

Claim 1, as amended herein, recites an electronic device with at least two contacts; and a monolayer of conductive organic material forming a conductive path between the contacts. The conductive path includes alternating ethynyl and aryl groups with at least one phenyl-ethynyl linkage, and at least one nitro electron withdrawing group.

Claim 21 recites an electronic device with two contacts, wherein at least one contact is a palladium contact; and a self-assembled monolayer of a conductive organic molecule comprising a phenyl-ethynyl-substituted phenyl-ethynyl-phenyl linkage between the contacts, wherein the substituted phenyl includes at least one nitro group, and wherein the organic molecule is bonded to the palladium contact by at least one isocyano group on a terminal phenyl of the linkage.

The Eguchi reference discloses a semiconductor device with an organic film and electrodes. The organic film includes chain-like polycyclic phenyl groups with both hydrophilic and hydrophobic parts. Eguchi further discloses that "*In order to form a conductive monomolecular film, [the molecules] are required to have further as an electroconductive part in combination, for example, tetracyanoquinodimethane (TCNQ), derivatives thereof, or analogues*

thereof, for example, 11,11,12,12-tetracyano-2,6-naphthoquinodimethane (TMAP); or tetrathiafulvalene (TTF) or derivatives thereof; or, further, tetrathiatetracene (TTT) or analogues thereof." However, Eguchi discloses neither alternating ethynyl and aryl groups with, nor at least one nitro electron withdrawing group, as recited in claims 1 and 21.

The examiner relies on Ogawa as teaching alternating ethynyl and aryl groups and further on Deviney as teaching at least one phenyl-ethynyl linkage.

Ogawa discloses manufacturing a chemically adsorbed film that can repel water and oil. Deviney discloses high strength thermoset copolymers with groups that are capable of undergoing additional polymerization, for example, substituted ethynyl groups, such as phenyl ethynyl groups. There is no teaching in either Ogawa or Deviney that would be able to predict the electrical conductive properties of such films based on their structure. In general, Applicant submits that the electrical conductive properties of chain-like molecules can not be predicted when groups within the chains are replaced. Accordingly, there would be no motivation to combine the teachings Ogawa and/or Deviney with those of Eguchi to modify the electrical and/or electronic properties of the material disclosed by Eguchi. In addition, Applicant observed useful memory effects (persistent conductivity states) that are not suggested by any of these references, either alone or in combination.

Fukami et al. (U.S. Patent 5,914,208) cite examples of an electron transporting agent which includes electron attractive substances such as para-diphenoquinone derivatives, benzoquinone derivatives, naphthoquinone derivatives, tetracyano-ethylene, tetracyanoquinodimethan, chloranil, bromanil, 2,4,7-trinitro-9-fluorenone, 2,4,5,7-tetranitro-9-fluorenone, 2,4,7-trinitro-9-dicyanomethylene-fluorenone, 2,4,5,7-tetranitroxanthone and 2,4,8-trinitrothioxanthone, and high molecular weight compounds derived from these electron attractive substances. However, Fukami does not disclose the alternating ethynyl and aryl groups with at least one phenyl-ethynyl linkage, as recited in amended claim 1, or a phenyl-ethynyl-substituted phenyl-ethynyl-phenyl linkage between the contacts, as recited in claim 21.

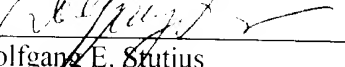
Accordingly, Applicant respectfully requests that the rejection of claims 1 and 21 be withdrawn. Claims 1-8, 11-13, 17-20 and 26 depend from claim 1 and should therefore be patentable for the same reasons that claim 1 is patentable.

It should also be noted that claim 1 was amended by incorporating the subject matter of claims 14 and 15 previously presented for examination, so that the present amendment does not necessitate a new search.

Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 617-951-7000 (direct dial: 617-951-7681).

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Respectfully submitted,

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